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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 07/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/764,042

Applicant(s)

DAVIES ET AL.

Examiner

Martin J. Angebrannndt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/19/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 and 30-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 and 30-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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The response provided by the applicant has been read and given careful consideration.

Responses to the arguments offered by the applicant are presented after the first rejection to which they are directed.

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The language added to page 2 of the specification on pages 2-3 of the response filed on 01/05/04 constitutes new matter. This material/information is not found in the specification as filed and the insertion of the additional information. The fact that this was present in another application does obviate this issue. The text together with the figures relating to the prior art clearly set forth the invention and how it differs from what the applicant assessed as the prior art at the time of filing. There is no need to add the text and discussion of "second surface optical media". The applicant has in section [0037] language indicating that the lasers do not pass through the substrate.

The new matter must be removed in the next response.

3. Claims 1-26 and 30-35 and 58 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter,

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which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 recites the use of far field optics. The examiner notes that nowhere in the specification as filed is there a discussion of the optical train. This is new matter and must be removed in the next response.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1,4,5,7-10,18,30 and 33 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Daimon '309.

Daimon '309 describes a molded polycarbonate substrate, a reflective layer, a SiN dielectric layer, a TbFeCo magneto-optic recording layer, a 80 nm SiN layer and a 10 nm Carbon layer. The medium is read by reflection through the carbon layer.

The claims do not require the metal/alloy layers to be recordable or separately addressable. The applicant seems to believe that they are the originators of the idea of addressing the optical recording medium from the side opposite the substrate. This is not the case.

Furthermore while thicker cover layers inherently preclude near field imaging, thinner layers do not exhibit any preference. The near field interaction is due to the small separation distance between the recording layer and the SIL or floating head due to the thinness of the protective layer. The examiner notes that the use of an 80 nm thick protective layer (38) is described in the instant specification at section [0038], which is the same thickness as the SiN layer of Daimon '309. Note that the claims use "comprising" language and so an additional layer.

To reduce the issues and clearly exclude at least some of the prior art, the applicant should likely limit the claims to media such as that shown in figure 3 of the instant specification. The applicant may wish to consider language indicating that the "first transparent layer" (claim 1) and the "second transparent layer" (claim 12) are sufficiently thick to allow the focusing of the disk drive to discriminate between them. [0041]. This type of limitation is much more substantive and would clearly distinguish the claims over Daimon '309. The rejection stands.

7. Claims 1-10, 18-20, 24-26, 30 and 35 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Yasuda et al. '788.

Figure 3 shows a substrate, with a second recording layer (13), an intermediate layer of 30 microns (14), a first recording layer (15) with a protective layer of 100 microns coated thereon. (15/27-64). The figure clearly shows the addressing laser incident from the side of

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layer 16. Figure 25 shows a polycarbonate support (22), a 20 nm reflective film (23a), a second enhancement film (23b), a second crystallization promotion layer (23c), a phase change recording material (23d), a first crystallization promotion layer (23e), a second enhancement film (23f) and a semitransparent enhancement film (**considered the first transparent layer**), which is later coated with 30 microns of an acrylic resin (see example 5) This is overcoated with a second recording layer assembly and finally coated with a 70 micron acrylic layer (26). The reading is from the side opposite the substrate. Useful substrates may be 0.3 to 1.2 mm thick and the protective layer may be 10-177 microns thick. (4/15-60)

The examiner holds that the article claims are anticipated by at least the intermediate product disclosed in example 5, prior to the coating of the final (70 microns) acrylic layer. The examiner is of the opinion that the 70 micron layer would move dust outside the focus of the laser reading/writing on the upper recording layer. Clearly, the optical recording medium is adapted to read/write from the side opposite the substrate as evidenced by figure 25.

The examiner notes that a far field optical recording apparatus is shown in figure 26. Clearly the thickness of the intermediate layer allows each of the layers to be accessed separately and the use of far field optic is exemplified. The applicant fails to appreciate that the antireflection limitation which is found so interesting is inherent as the optical thickness for an antireflection condition corresponds to an integer multiple of $(n + \frac{1}{4}) \lambda$ (where n is an integer) and that optical thickness is the product of the refractive index and the physical thickness. In units of wavelength this result is divided by the wavelength of interest, so failure to specify the wavelength of interest renders this language quite broad. The applicant argues that the thickness of 10-177 microns is outside of the claimed range, but fails to include this as a limitation in the

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claims. The claims are therefore not commensurate in scope with the coverage sought. Light seems to pass through the 10-177 micron layer and reach the recording layers, so light is demonstrated to be coupled into the medium by that layer as well as the underlying enhancement layers. The rejection stands.

8. Claims 1-10,18-26,30 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda et al. '788.

It would have been obvious to one skill in the art to modify example 5 by using a thinner protective layer of 10 microns, in place of the thicker 70 microns with a reasonable expectation of the layer functioning to protect the surface of the medium. Further, the examiner holds that it would have been obvious to use other substrate thicknesses disclosed 0.3 mm with a reasonable expectation of forming a useful optical recording medium.

The applicant discloses that thicknesses of greater than 15 microns will facilitate defocusing (prepub at [0041]), therefore the scope of coverage sought would seem to exclude protective layers thicker than 15 microns.

The rejection stands for the reason above as no further arguments were directed at this rejection beyond those addressed above.

9. Claims 1-10,12-26,30 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. '609, in view of Holster et al. '553 and Yasuda et al. '788.

Takeda et al. '609 teaches with respect to figures 13, a central substrate with information embossed on both sides, the formation of reflective films (46), a light curing resin which is cured in contact with the reflective layers and other mold surfaces, the deposition of semitransparent films (45) and the coating of these films with a protective layer. The semireflective layer is

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silicon nitride. The use of this with other recording layer types is disclosed. (7/9-15) The thickness of the internal substrate is 0.3 mm or 0.8 mm. (4/4-9 and 5/60-61). The protective and intermediate layers are 0.1 mm thick and UV curable. (5/24-34 and 4/40-50). The use of depth of focus adjustment is disclosed with respect to figure 13 and 18. The use of evaporative deposition and sputtering is disclosed. (5/11-17)

Holster et al. '553 teaches the use of dielectric films or thin 10-20 nm thicknesses of Au, Ag, Ni, Al or the like for semitransmissive films (4) (7/56-68) teaches a protective layer between the reflective layer and the spacer. The spacer layer is illustrated to be much thicker than the protective lacquer (56 in figure 5)

It would have been obvious to one skilled in the art to modify the invention of Takeda et al. '609 by replacing the semitransparent silicon nitride dielectric film with a metal or alloy film based upon the teachings of equivalence by Holster et al. '553 and to use thinner protective films based upon the teachings of Holster et al. '553 and Yasuda et al. '788.

The applicant points out that the thick substrate materials cause optical aberrations and wavefront distortions in the optical medium. The examiner recognizes this argument, but notes that the 0.6 mm substrates of the prior art described in the instant application are much thicker than the 0.1 mm protective layers of Takeda et al. '609, which also uses the central substrate of the claimed optical recording medium. Thicknesses such as these are not described in the specification as having a deleterious effect on the performance of the medium. Further, the examiner notes that specification does not speak to the thinner protective lacquer taught by Holster et al. '553 (3/15-16 and 11/39-40). The protective lacquer of Holster et al. '553 transmits

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the light and is therefore held to meet the "coupling" limitation of the claims. The rejection stands.

The applicant has asserted in the arguments and in the specification (prepub at [0015]), the benefits of using a substrate embossed on both side and built out from the center to produce an optical recording media on both sides. The examiner notes that Takada et al. '609 predates this discovery by the applicant. When the central substrate embodiments are used, the need for additional support is reduced and other layers may be thinner and clearly there would be no need for other embossed substrates. This is taught in the art. The applicant can argues the point, but should not ignore the teachings of figures 5-18 of the Takeda et al. '609 reference which shows the same embossing and coating processes as figures 5a-6e of the instant application. The issue of thinner protective layers is clearly taught by Yasuda et al. '788.

The rejection stands for the reason above as no further arguments were directed at this rejection beyond those addressed above.

10. Claims 1-10,12-26,30 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. '609, in view of Holster et al. '553 and Yasuda et al. '788, further in view of Wilting et al. '497.

Wilting et al. '497 teach changing the relative placement of the reflective and the partially reflective layers to allow the recording medium to be read either through the top (protective layer) or through the bottom (substrate). The use of protective coatings of 3-10 microns formed from organic materials or 100-500 nm coatings formed from inorganic materials is disclosed. (7/55-57). The reading from either side is shown in the figures.

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In addition to the basis provided above, the examiner cites Wilting et al. '497 to support the position that thin protective layers are known in the optical recording media art and that one of ordinary skill in the art based upon the direction within the figures of Holster et al. '553 would have modified the combination of Takeda et al. '609 and Holster et al. '553 to use protective layers made from UV curable materials as taught by Takeda et al. '609 and Holster et al. '553 in thinner coatings, such as those taught by if Wilting et al. '497 only to save money on UV curable material. Wilting et al. '497 demonstrates that the thick coating are not necessary for the layers to act as protective layers.

The rejection stands for the reason above as no further arguments were directed at this rejection beyond those addressed above.

11. Claims 1-10, 12-26, 30, 35 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. '609, in view of Holster et al. '553, Yasuda et al. '788, Wilting et al. '497 and Nishiuchi et al. '619.

Nishiuchi et al. '619 teach that the UV curable intermediate layer may be 40 microns thick (13/29-31). The use of phase change recording materials in place of one of the reflective layer is disclosed, including direction to InSb materials. (14/36-61) The read only materials may be dielectrics such as silicon nitride and metals such as gold, aluminum or copper. (13/65-14/6). Examples 4 and 5 (figures 18 and 19) teach the phase change layer as the further of the recording layers and utilize them. Examples 2+ use 680 nm lasers light.

It would have been obvious to one skilled in the art to modify the invention of Takeda et al. '609 as combined with Holster et al. '553, Yasuda et al. '788, Wilting et al. '497 by replacing the semitransparent silicon nitride dielectric film with a metal or alloy film based upon the

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teachings of equivalence by Nishiuchi et al. '619. Further it would have been obvious to one skilled in the art to include a phase change recording layer adjacent to the fully reflective layer to allow the medium to record as well as replay information.

The rejection stands for the reason above as no further arguments were directed at this rejection beyond those addressed above.

12. Claims 1-26,30 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. '609, in view of Holster et al. '553, Yasuda et al. '788, Wilting et al. '497, Nishiuchi et al. '619 and Pan et al. '680.

Pan et al. '680 teaches that SbInSn have stable state, resistance to corrosion, fast crystallization rates and are able to be recorded at high densities. (3/16-57).

In addition to the basis provided above, the examiner holds that it would have been obvious to modify the invention of Takeda et al. '609 combined with Holster et al. '553, Yasuda et al. '788, Wilting et al. '497 and Nishiuchi et al. '619 to take advantage of the properties of the InSbSn compositions of Pan et al. '680 with a reasonable expectation of realizing these.

This is a new rejection and therefore the response provided above is relied upon.

13. Claims 1-10,12-26,30,32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. '609, in view of Holster et al. '553, Yasuda et al. '788 and Wilting et al. '497, further in view of **either of** Nakahara et al. '278, Sugita et al. '494 or Allebest et al. '515.

Nakahara et al. '278 teach optical recording media 40 mm in diameter (8/14-16).

Sugita et al. '494 teach optical recording media 1.9 inches (48.2 mm) in diameter (11/11-14).

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Allebest et al. '515 teach optical recording media with 30 mm in diameter substrates
(3/65)

It would have been obvious to one skilled in the art to modify the invention of Takeda et al. '609 combined with Holster et al. '553, Yasuda et al. '788 and Wilting et al. '497 by using different disk substrates known in the art, such as those disclosed by **either of** Nakahara et al. '278, Sugita et al. '494 or Allebest et al. '515 to allow these to be played on these types of players, which are assumably smaller.

The rejection stands for the reason above as no further arguments were directed at this rejection beyond those addressed above.

14. Claims 1-26,30-32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. '609, in view of Holster et al. '553, Yasuda et al. '788, Wilting et al. '497, Nishiuchi et al. '619 and Pan et al. '680, further in view of **either of** Nakahara et al. '278, Sugita et al. '494 or Allebest et al. '515.

It would have been obvious to one skilled in the art to modify the invention of Takeda et al. '609 combined with Holster et al. '553, Yasuda et al. '788, Wilting et al. '497, Nishiuchi et al. '619 and Pan et al. '680 by using different disk substrates known in the art, such as those disclosed by **either of** Nakahara et al. '278, Sugita et al. '494 or Allebest et al. '515 to allow these to be played on these type of players, which are assumably smaller.

The rejection stands for the reason above as no further arguments were directed at this rejection beyond those addressed above.

15. Claims 1-26 and 30-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. '609, in view of Holster et al. '553, Yasuda et al. '788, Wilting et al. '497, Nishiuchi

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et al. '619 and Pan et al. '680, further in view of **either of** Nakahara et al. '278, Sugita et al. '494 or Allebest et al. '515 combined with Gotoh et al. '736 and Mumford et al. WO 99/45539.

Gotoh et al. '736 teaches the provision of a coding area in a PCA sector to allow use of the ROM areas of the CD (31/54-32/27).

Mumford et al. WO 99/45539 teaches the provision of a coding area in a write once band or sector to allow use of the ROM areas of the CD (page 3/second paragraph).

It would have been obvious to one skilled in the art to modify the invention of Takeda et al. '609 combined with Nishiuchi et al. '619, Yasuda et al. '788, Pan et al. '680 and **either of** Nakahara et al. '278, Sugita et al. '494 or Allebest et al. '515 by encoding information on the discs in the writable areas to prevent pirating as disclosed by Gotoh et al. '736 and Mumford et al. WO 99/45539.

The rejection stands for the reason above as no further arguments were directed at this rejection beyond those addressed above.

16. Claims 1-10,12-26,30 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. '609, in view of Holster et al. '553, Yasuda et al. '788 and Wilting et al. '497, combined with Ueno et al. '457

It would have been obvious to modify the process of using the optical recording media of Takeda et al. '609 combined with **either of** Fujimori et al. '547, Yasuda et al. '788 Holster et al. '553, Kobayashi et al. '868 or Saito et al. '454 by using differences in reflectivity rather than depth of focus based upon the disclosure of equivalence by Ueno et al. '457.

This is a new rejection and therefore the response provided above is relied upon.

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17. Claims 1-26,30,35 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. '609, in view of Holster et al. '553, Yasuda et al. '788, Wilting et al. '497, Nishiuchi et al. '619 and Pan et al. '680, further in view of Ueno et al. '457

It would have been obvious to modify the process of using the optical recording media of Takeda et al. '609 combined with Yasuda et al. '788, Nishiuchi et al. '619 and Pan et al. '680 by using differences in reflectivity rather than depth of focus based upon the disclosure of equivalence by Ueno et al. '457.

The rejection stands for the reason above as no further arguments were directed at this rejection beyond those addressed above.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebrannndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Martin J Angebrannndt

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7/2/05